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Association des pharmaciens du Canada

Continuous Glucose Monitoring (CGM) In Practice ↳ Enhancing Satisfaction

How I Used Continuous Glucose Monitoring (CGM) In My Practice to Enhance My Job Satisfaction

Presented by: Susie Jin, RPh CDE
2024-Nov-14

Canadian Pharmacists Association

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Presenter/Speaker Personal Disclosure

Presenter's Name: Susie Jin

- I have the following relationships with commercial interests:
  - Advisory Board/Speakers Bureau: Dexcom, Eisai, NovoNordisk
  - Funding (Grants/Honoraria) : not applicable
  - Research/Clinical Trials: NovoNordisk
  - Speaker/Consulting Fees: Abbott, Boehringer Ingelheim, Dexcom, Eisai, GlaxoSmithKline, Kenvue, Lilly, Moderna, NovoNordisk, Pfizer

- Other: Not applicable to all of the following
  - Current/past Employee
  - Investments: Investments in sponsor organization or entity with product in program
  - Patent in product

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Disclosure of Financial Support

- This program has received financial support in the form of an educational grant from Dexcom

- Speaking Fees for current program:
  - I have received a speaker's fee from Canadian Pharmacists Association for this learning activity
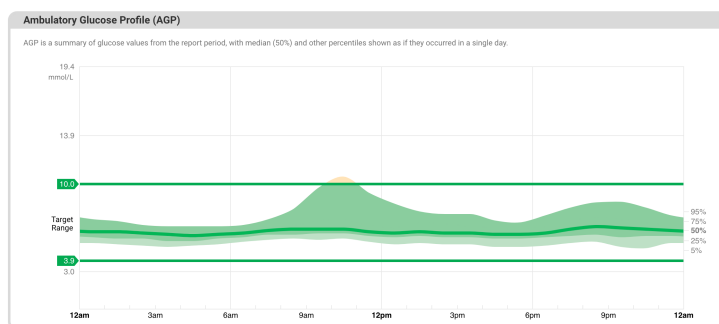
Action Goals

By the end of this webinar, participants will WANT to:

Proactively engage with people in our community pharmacies to ensure:

- ✓ People who are using continuous glucose monitoring (CGM), know their CGM numbers and what they mean

- ✓ People who could benefit from using CGM to support their diabetes self-care are aware of how CGM technology could help them

Continuous Glucose Monitoring (CGM) Goals

1. Aim for time in range<u>s</u> goals
2. Strive for flat, narrow, in-range (FNIR) glucose profile
3. Minimize glycemic variability (CV ≤36 % [1,2])

Ambulatory Glucose Profile (AGP)

AGP is a summary of glucose values from the report period, with median (50%) and other percentiles shown as if they occurred in a single day.

Type 1 and Type 2 diabetes

TAR Time above range	> 13.9 mmol/L	< 5% (72 min)
	> 10.0 mmol/L	< 25% (6 hrs)
TIR Time in range	3.9 - 10.0 mmol/L	> 70% (17 hrs)
TBR Time below range	< 3.9 mmol/L	< 4% (1 hr)
	< 3.0 mmol/L	< 1% (15 min)

CV, coefficient of variation; T1D, type 1 diabetes; T2D, type 2 diabetes.
1Battelino T et al. *Diabetes Care*. 2019; 42(8): 1593-1603. 2. Cheng A et al. *Can J Diabetes*. 2021; 45: 580-587.

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Problem: Blood Glucose Monitoring in People with Diabetes

Optimal Self-Monitoring of Blood Glucose

Agence canadienne des médicaments et des technologies de la santé
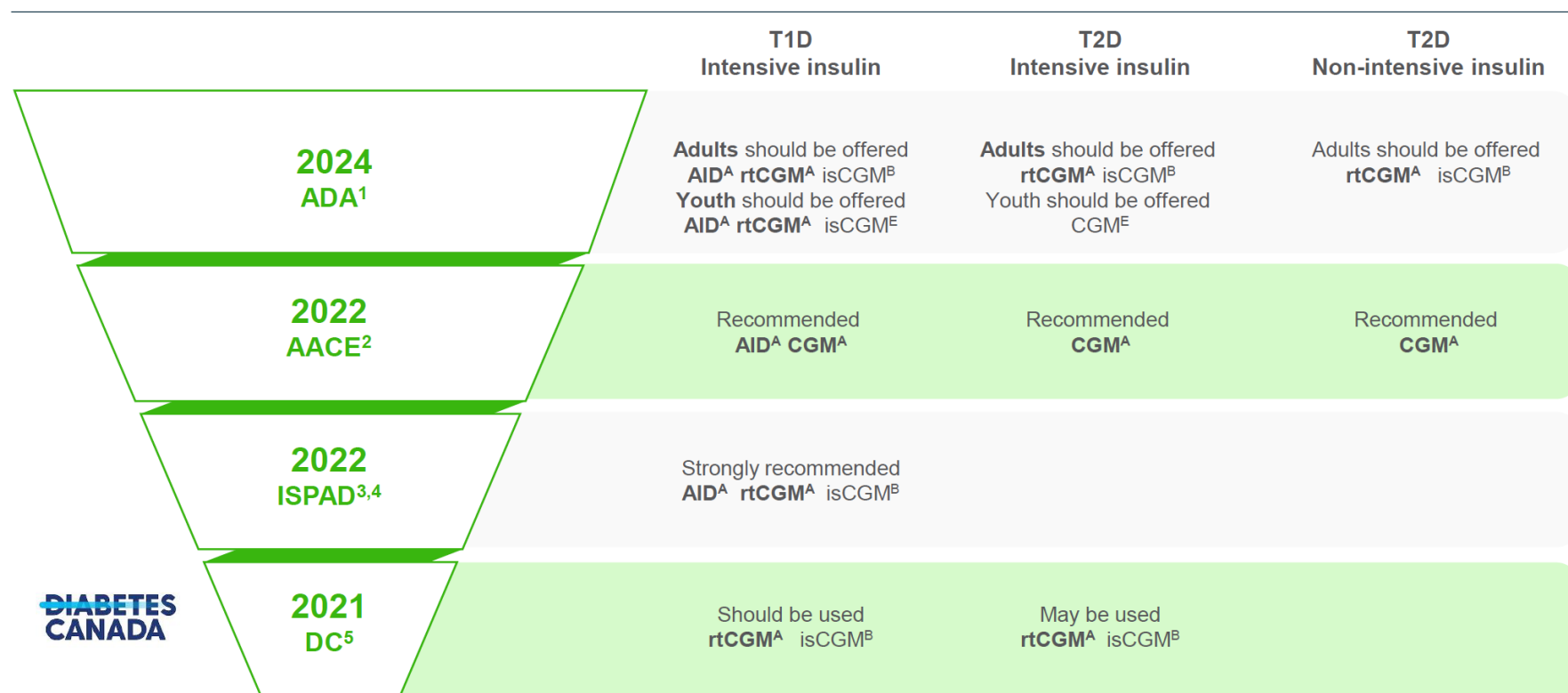
November 2009

CADTH Project in Brief

A summary interpretation of the data

Use of blood glucose test strips for frequent SMBG in all patients ~~not~~ using insulin is <mark>unlikely to represent efficient</mark>

The <mark>education</mark> to <mark>translate results from self-monitoring into appropriate responses appeared to result in no greater benefit than self-monitoring without education</mark>, although studies may have been limited in their ability to adequately assess the effects of education.

Pharmacists continue to be the PRIMARY PROVIDERS of glucose monitoring supplies

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Evolution of Clinical Practice Guidelines

	T1D Intensive insulin	T2D Intensive insulin	T2D Non-intensive insulin
2024 ADA[1]	**Adults** should be offered **AID[A] rtCGM[A] isCGM[B]** **Youth** should be offered **AID[A] rtCGM[A] isCGM[E]**	**Adults** should be offered **rtCGM[A] isCGM[B]** Youth should be offered CGM[E]	Adults should be offered **rtCGM[A] isCGM[B]**
2022 AACE[2]	Recommended **AID[A] CGM[A]**	Recommended **CGM[A]**	Recommended **CGM[A]**
2022 ISPAD[3,4]	Strongly recommended **AID[A] rtCGM[A] isCGM[B]**		
2021 DC[5]	Should be used **rtCGM[A] isCGM[B]**	May be used **rtCGM[A] isCGM[B]**	

A-E, Grade of evidence where A is the highest level of evidence. ADA, American Diabetes Association; ISPAD, International Society for Pediatrics and Adolescent Diabetes; AACE, American Association of Clinical Endocrinology; DC, Diabetes Canada; T1D, type 1 diabetes; T2D, type 2 diabetes; rtCGM, real-time continuous glucose monitoring; isCGM, intermittently-scanned continuous glucose monitoring; CGM, continuous glucose monitoring; AID, automated insulin delivery. 1. El Sayed NA et al. *Diabetes Care*. 2024;47:S124-S144. 2. Blonde L et al. *Endocrine Practice*. 2022 Oct;28(10):923-1049. 3. Tauschmann et al. *Pediatr. Diabetes.*2022;23(8):1390-1405. 4. Sherr JL et al. *Pediatr. Diabetes*. 2022;23(8):1406-1431. 5. Cheng AYY et al. *Can J.of Diab*. 2021;45:580-587.

Proven Outcomes with Continuous Glucose Monitoring

A1C Reduces A1C[1-6]

Reduces hypoglycemia[6]

Increases time in range[1-6]

Improves quality of life[7]

1 Beck RW, et al. JAMA. 2017;317(4):371-378. 2 Beck RW, et al. Ann Intern Med. 2017;167(6):365-374. 3 Martens T, et al. JAMA. 2021;325(22):2262-2272. 4 Laffel LM, et al. JAMA. 2020;323(23):2388-2396. 5 Welsh JB, et al. J Diabetes Sci Technol. 2022:19322968221099879. 6. Heinemann L, et al. Lancet 2018;391 :1367-77. 7 Gilbert TR et al. Diabetes Technol Ther. 2021;23(S1):S35-S39.

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Role Play

Hi Sadaf,
Susie Jin here, your pharmacist. I see you're in to pick up a repeat on your Dexcom G7* glucose sensors. Many people today are wearing glucose sensors but are not fully getting the most out of what glucose sensors can do to improve their health. Would you have a few minutes so I can try to make sure that this technology is optimally supporting your health?
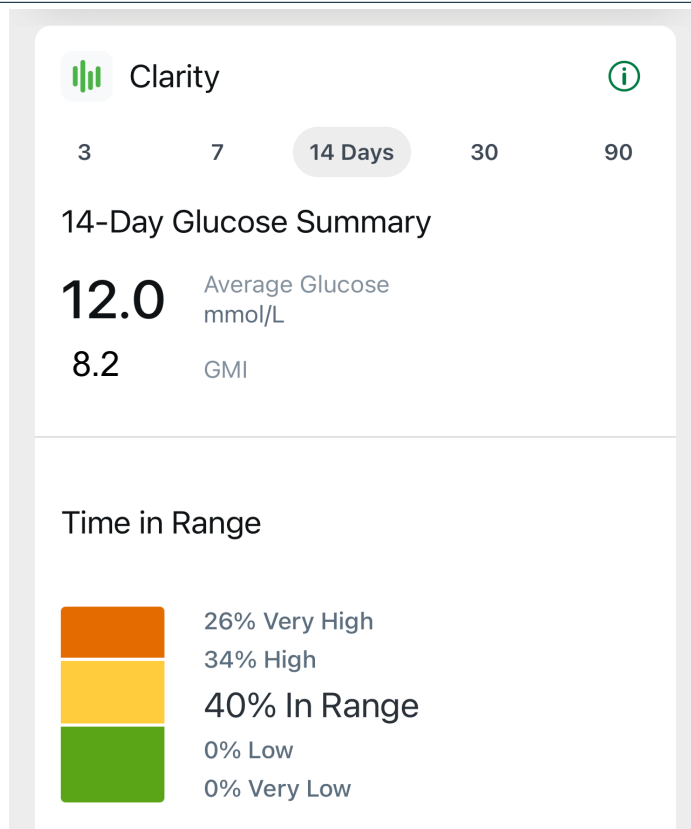
—

*can equally substitute the tradename "Libre2 sensors"

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Dexcom G7 Home Screen

First phone (left):

11:49

dexcom

17.0 mmol/L

| 3 Hours | 6 | 12 | 24 | ⋯ |

- 22
- 15.0
- 10
- 3.9
- 2

9AM   10AM   11AM   Now

Clarity ⓘ

| 3 | 7 | 14 Days | 30 | 90 |

14-Day Glucose Summary

12.0 Average Glucose mmol/L

8.2 GMI

Time in Range

- 26% Very High
- 34% High
- 40% In Range
- 0% Low
- 0% Very Low

Glucose   History   Connections   Profile

Second phone:

11:50

dexcom

17.0 mmol/L

| 3 | 6 Hours | 12 | 24 | ⋯ |

- 22
- 15.0
- 10
- 3.9
- 2

8AM   10AM   Now

Third phone:

11:50

dexcom

17.0 mmol/L

| 3 | 6 | 12 Hours | 24 | ⋯ |

- 22
- 15.0
- 10
- 3.9
- 2

4AM   8AM   Now

Fourth phone:

11:50

dexcom

17.0 mmol/L

| 3 | 6 | 12 | 24 Hours | ⋯ |

- 22
- 15.0
- 10
- 3.9
- 2

4PM   12AM   8AM   Now

Sadaf's Time In Range compared to Standardized CGM Metrics

Clarity

| 3 | 7 | **14 Days** | 30 | 90 |

14-Day Glucose Summary

12.0 — Average Glucose mmol/L

8.2 — GMI

Time in Range

- 26% Very High
- 34% High
- **40% In Range**
- 0% Low
- 0% Very Low

Type 1 and Type 2 diabetes

TAR Time above range
- > 13.9 mmol/L — < 5% (72 min)
- > 10.0 mmol/L — < 25% (6 hrs)

TIR Time in range
- 3.9 - 10.0 mmol/L — > 70% (17 hrs)

TBR Time below range
- < 3.9 mmol/L — < 4% (1 hr)
- < 3.0 mmol/L — < 1% (15 min)

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Poll 1:

Looking at Sadaf's Dexcom G7 Time In Range, we know that Sadaf's glucose-related issue is:

A. Hypoglycemia

B. Hyperglycemia

C. No issues, Time-In-Range is at target

Sadaf's Relevant Medical History and Medications

45 years old

Type 2 diabetes x 5 years
Obesity, no other comorbidities
stressful, sedentary employment

Current medications:
- Metformin 1,000mg p.o. twice daily
- Empagliflozin 10mg p.o. once daily
- Perindopril 8mg p.o. once daily
- Rosuvastatin 10mg p.o. once daily
- Insulin glargine U-100 25 units s.c. once daily
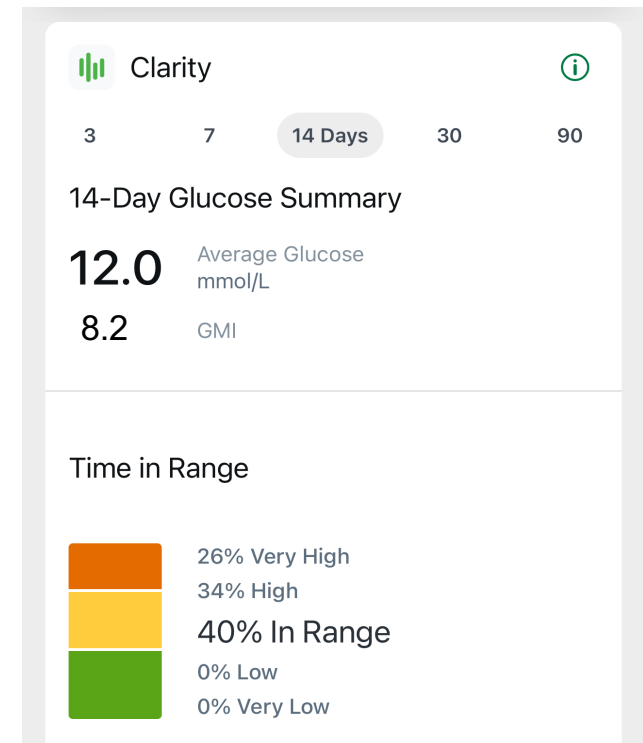
Poll 2:

Having assessed Sadaf's current glycemic management, and based on the last day you were at work, what action would you take?

A. Offer to book an appointment for Sadaf so that YOU can support Sadaf in her diabetes self-management

B. Refer Sadaf back to her diabetes health-care team, e.g., her primary care provider and/or the local diabetes education centre

NOTE: There is NO ABSOLUTE CORRECT ANSWER, many times for me (susie jin), it may depend on "is it flushot season"… do I have adequate capacity to offer care… and Where and With whom would Sadaf like to seek care?

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During an appointment with Sadaf…

ABCDES of diabetes care

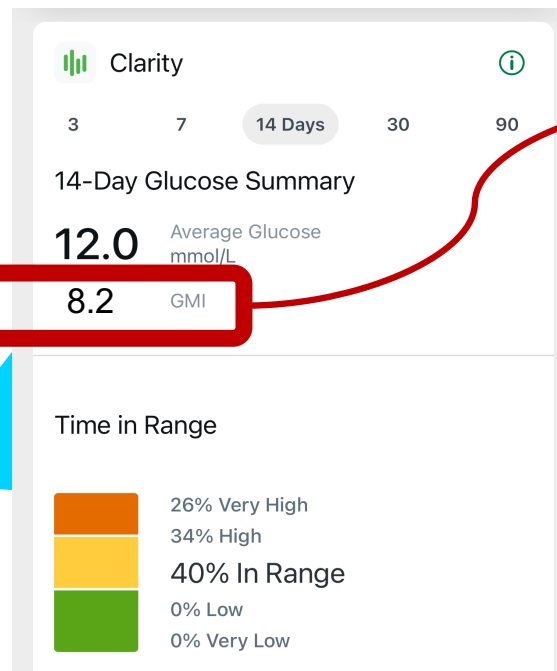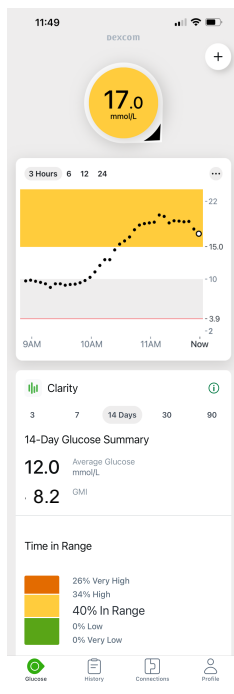|		GUIDELINE TARGET (or personalized goal)
A	**A1C** with other (CGM*, BG*) glycemic targets *when indicated/accessible	A1C ≤7.0% (or ≤6.5% to ↓ risk of CKD and retinopathy) If on insulin or insulin secretagogue, assess for hypoglycemia and ensure driving safety A1C 6.0 - <6.5% for selected adults with type 2 diabetes with potential remission to prediabetes A1C <6.0 for selected adults with type 2 diabetes with potential remission to normoglycemia
B	**BP** targets	BP <130/80 mmHg If on treatment, assess for risk of falls
C	**Cholesterol** targets	LDL-C ≤2.0 mmol/L (or >50 % reduction from baseline); non-HDL-C ≤ 2.6 mmol/L, apo B ≤ 0.8 g/L If ASCVD, LDL ≤ 1.8 mmol/L. Alternative: non-HDL-C ≤2.4 mmol/L, apo B ≤0.7 g/L
D	**Drugs** for CV and/ or Cardiorenal protection	• GLP1-RA + SGLT2i with demonstrated cardiorenal benefits if type 2 with ASCVD, CKD or HF, OR Age >60 with ≥2 CV risk factors • ACEi/ARB if CVD, age ≥55 with risk factors, OR diabetes complications • Statin if age ≥40, age ≥30 and diabetes >15 years OR diabetes complications • ASA if CVD +/- finerenone if T2D + CKD with albuminuria
E	**Exercise** goals and healthy eating	• 150 minutes of moderate to vigorous aerobic activity/ week and resistance exercises 2-3 times/week • Follow healthy dietary pattern (eg Mediterranean diet, low glycemic index)
S	**Screening**	• Cardiac: ECG every 3-5 years if age >40 OR diabetes complications • Foot: Monofilament/Vibration yearly or more if abnormal • Kidney: Test eGFR and ACR yearly, or more if abnormal • Retinopathy: type 1 - annually; type 2 - every 1-2 years • Immunizations: ensure up-to-date as per NACI recommendations
S	**Smoking** cessation	If smoker: Ask permission to give advice, arrange therapy and provide support
S	**Self-management,** stress, sleep, other barriers	• Set personalized goals (see "individualized goal setting" panel) • Assess for stress, sleep, mental health and financial or other concerns that might be barriers to goals

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During an appointment with Sadaf…

ABCDES of diabetes care

		GUIDELINE TARGET (or personalized goal)
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estimated A1C / sensor-derived A1C

↳ indicates what Sadaf's lab-derived A1C would be if current glucose management were to continue for 3 months

Discuss what would Sadaf like her A1C to be…

A1C Targets for glycemic management

A1C (%)	Targets
<6.0	Selected adults with type 2 diabetes with potential for remission to normoglycemia
≤6.5*	Adults with type 2 diabetes to reduce the risk of chronic kidney disease and retinopathy if at low risk of hypoglycemia†
≤7.0	**MOST ADULTS WITH TYPE 1 OR TYPE 2 DIABETES**
7.1 ↓ **8.5**	7.1-8.0%: Functionally dependent† 7.1-8.5%: • Recurrent severe hypoglycemia and/or hypoglycemia unawareness • Frail individuals and/or with cognitive impairment‡ • Limited life expectancy

Avoid higher A1C to minimize risk of symptomatic hyperglycemia and acute and chronic complications

End of life: A1C measurement not recommended. Avoid symptomatic hyperglycemia and any hypoglycemia.
* Target 6.0 to <6.5 for adults with type 2 diabetes with potential for remission to prediabetes
† Based on class of antihyperglycemic medication(s) utilized and the person's characteristics
‡ See Diabetes in Older People chapter

ABC**D**ESSS

Drugs for Cardiovascular and/or Renal Protection

Does the individual have / Is the person :

Atherosclerotic Cardiovascular Disease • Coronary artery disease, Peripheral arterial disease, Cerebrovascular/carotid disease	**GLP-1 RA[1] + SGLT2i[1] + Statin[2] + ACEi/ARB[3] + ASA[4]**
• Age >60 with ≥2 additional cardiovascular risk factors[5]	**GLP-1 RA[1] + SGLT2i[1] + Statin[2] + ACEi/ARB[3]**
• Chronic Kidney Disease (eGFR <60 mL/min/1.73m[2], ACR ≥2.0 mg/mmol)	**SGLT2i[1] + Statin[2] + ACEi/ARB[3] +/- GLP-1 RA +/- finerenone[6]**
• Heart Failure (see HF guidelines for other warranted therapies)	**SGLT2i[1] + Statin[2] + ACEi/ARB[3]**
• Retinopathy • Neuropathy • Left ventricular hypertrophy • Age ≥55 with additional cardiovascular risk factors[7]	**Statin[2] + ACEi/ARB[3]**
• Age ≥40 • Age ≥30 and diabetes >15 years • Warranted for statin therapy based on the Canadian Cardiovascular Society (CCS) Lipid Guidelines • Metabolic dysfunction-Associated Steatotic Liver Disease (MASLD) [6]	**Statin[2]**

> **Sadaf:**
>
> 45 years old
>
> Type 2 diabetes x 5 years
> Obesity, no other comorbidities
> stressful, sedentary employment

1 GLP-1 RA / SGLT2i: Should be given at doses that have demonstrated vascular protection. Not approved by Health Canada for use in type 1 diabetes.
2 See Canadian Cardiovascular Society (CCS) Lipid Guidelines for other warranted therapies. Dose adjustments if lipid targets not being met, e.g., LDL-C ≤2.0 mmol/L (non-HDL-C ≤ 2.6 mmol/L, apo B ≤ 0.8 g/L); or, with ASCVD, LDL-C ≤1.8 mmol/L (non-HDL-C ≤2.4 mmol/L, apo B ≤0.7 g/L)
3 ACE-inhibitor or ARB should be given at doses that have demonstrated vascular protection (e.g., perindopril 8 mg once daily [EUROPA trial], ramipril 10 mg once daily [HOPE trial], telmisartan 80 mg once daily [ONTARGET trial]).
4 ASA should not routinely be used for the primary prevention of cardiovascular disease in people with diabetes. ASA may be used for secondary prevention. Consider clopidogrel if ASA-intolerant.
5 Tobacco use; dyslipidemia (use of a lipid modifying therapy or a documented untreated LDL ≥3.4 mmol/L or HDL-C <1.0mmol/L for men and <1.3 mmol/L for women, or triglycerides ≥2.3 mmol/L); or hypertension (use of blood pressure drug or untreated SBP ≥140 mm Hg or DBP ≥90 mmHg); central obesity
6 Adult with type 2 diabetes
7 TC > 5.2 mmol/L, HDL-C < 0.9 mmol/L, hypertension, albuminuria, smoking

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Poll 3:

Sadaf is 45 years old with type 2 diabetes for 5 years. She lives with obesity and no other comorbidities. The agents indicated for cardiovascular and renal protection for Sadaf are:

A. Statin

B. Statin + ACEi/ARB

C. Statin + ACEi/ARB + GLP-1 RA and/or SGLT2i

D. Statin + ACEi/ARB + SGLT2i and/or GLP-1 RA

E. Statin + ACEi/ARB + GLP-1 RA and/or SGLT2i +/- finerenone

F. Statin + ACEi/ARB + GLP-1 RA and/or SGLT2i + ASA

Poll 3:

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A. Statin

B. Statin + ACEi/ARB

C. Statin + ACEi/ARB + GLP-1 RA and/or SGLT2i

D. Statin + ACEi/ARB + SGLT2i and/or GLP-1 RA

E. Statin + ACEi/ARB + GLP-1 RA and/or SGLT2i +/- finerenone

F. Statin + ACEi/ARB + GLP-1 RA and/or SGLT2i + ASA

During an appointment with Sadaf…

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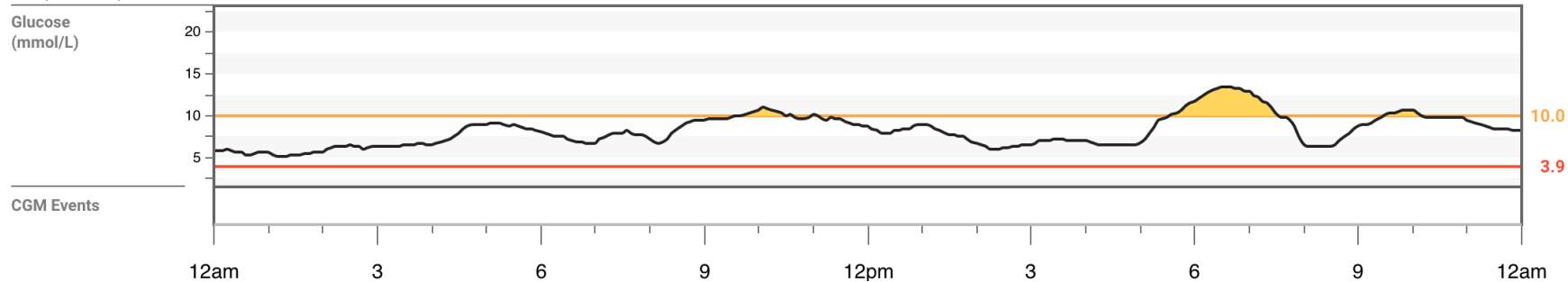|		GUIDELINE TARGET (or personalized goal)
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S	**Smoking** cessation	If smoker: Ask permission to give advice, arrange therapy and provide support
S	**Self-management,** stress, sleep, other barriers	• Set personalized goals (see "individualized goal setting" panel) • Assess for stress, sleep, mental health and financial or other concerns that might be barriers to goals

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The "Power" of Food:

PRESCRIPTION FOR BETTER BLOOD SUGAR

Your recent blood tests show that your blood sugar is trending higher. This means that you have ___ **prediabetes** or ___ **type 2 diabetes**. But with some simple dietary and lifestyle changes you can lower your blood sugar and greatly reduce your risk of future health complications. The key is to consume less sugar, or food and drinks that digest to sugar. **Here's the prescription for what to do:**

Drinks

Simply cutting out sugary drinks will go a long way to improve your blood sugar. For some people this is the only change they need to make. When in doubt, water is always a great choice; try it with a squeeze of lemon or lime:

• **ENJOY** water, sparkling water, diet sodas	• **AVOID** sugary soft drinks, and fruit juice of any kind
• Unsweetened tea or coffee (black or with cream)	• Sweet tea or coffee, sweet specialty coffees
• The occasional dry wine, champagne, gin or vodka with water or ice.	• Beer, sweet cocktails, liqueurs, fortified wines, sweet wines

Breakfast

Whatever time you have your first meal of the day, begin with protein and fiber. Follow the advice for lunch and dinner below and make all meals consist of protein, fibre and a bit of fat for flavor. Leftovers are great.

• **ENJOY** plain Greek yogurt, or cottage cheese, with fresh or frozen berries topped with nuts and seeds	• **AVOID** boxed cereals, oatmeal, granola, or grain-based porridges
• Eggs any way; grilled meat or fish; cheese, sliced tomato, vegetables, avocado, ham, fish, or bacon	• Pastries, donuts, muffins, toast, bagels, flour-based baked goods, pancakes with syrup

Lunch & Dinner

1.Pick a protein like meat, poultry, fish, eggs, or tofu. 2. Have as many leafy-green or above ground vegetables as you want. 3: Add a bit of fat, like butter or olive oil, for flavor. As easy as 1, 2, 3.

• **ENJOY** grilled, baked, broiled, poached, or fried meat, fish, poultry, or tofu	• **AVOID** breaded or deep-fried meat, poultry or fish
• Plenty of above ground vegetables, leafy salads, with butter, salad dressing, or olive oil and vinegar	• Pasta, potatoes, rice, bread, pita, tortillas, naan, or other starches
• For dessert cheese and nuts, plain yogurt with berries	• Cakes, cookies, pastries, ice cream, or any sweets for dessert

Snacks

Eat enough at meal times that you are not hungry for snacks, but if you need a snack choose the following.

• **ENJOY** veggies and yogurt dip, hard boiled eggs, unsweetened jerky, slices of cheese, a handful of nuts like roasted almonds or pistachios.	• **AVOID** chocolate bars, sweets, muffins, donuts, pastries, potato chips, pretzels, nachos, crackers, popcorn, corn chips or other packaged snacks.

Sleep, Movement, Stress

Consuming less sugar, or foods that digest to sugar, will go a long way to improve your blood sugar levels. But other lifestyles changes can help, too, especially getting enough sleep, moving your body in activities you enjoy, and reducing stress.

• **TRY** to go to bed and get up at the same time every day; Sleep in a quiet, dark bedroom. Avoid screens before bed. Put the cellphone in another room.	• Try to walk daily, or do other light exercise or movement that you enjoy. Work up to regular, enjoyable exercise.
• Try not to sit at a desk for long periods. Get up regularly to move.	• Try meditation, breathing exercises, a warm bath, and other stress reducing activities.

Remission Possible | diabetesremission.ca

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LOW CARB & KETO SHOPPING LIST

REMISSION POSSIBLE

When you're grocery shopping stick to the outer rim of the store. Frozen berries and vegetables are great to have on hand and won't go bad. Pick up any of the following items:

Proteins
beef
lamb
pork
poultry
game
fish
seafood
luncheon meats & sausages*
eggs
tofu, tempeh, natto*

Natural fats
avocado oil
bacon
chicken fat (schmaltz)
coconut milk
coconut oil
full-fat salad dressings*
ghee
lard and tallow
mayonnaise
nuts and nut butters
nut oils of all types
olive oil
sesame oil

Vegetables
artichoke
asparagus
avocado
bok choy
broccoli
Brussels sprouts
cabbage
cauliflower
celery
cucumber
eggplant
fennel
garlic
green beans
hearts of palm
jicama
kholrabi
leafy greens
leeks
mushrooms
okra
olives
onion
parsley
peppers
pickles*
pumpkin
radishes
rhubarb

rutabaga
scallions
shallots
snow peas
sprouts
squash
sugar snap peas
tomatillos
tomato
turnip
zucchini

Fruit
blueberries
raspberries
strawberries
blackberries
lemons
limes

Dairy products
butter
cheeses of all kinds
cottage cheese
cream cheese
ghee
cream cream (18%, whipping*)
mascarpone
ricotta
sour cream
yogurt - plain, full-fat

*no added sugar or starches

Low carb and keto diets have become very popular. You can find many cookbooks, websites, and magazines with a wide variety of delicious and filling low carb and keto recipes.

*Adapted (partial view)

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The "Power" of Food

DAILY GLUCOSE PROFILES

Each daily profile represents a midnight to midnight period with the date displayed in the top-left corner.
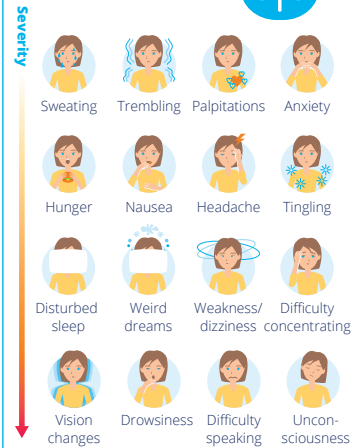
Recall: Sadaf's current medications:

- Metformin 1,000mg p.o. twice daily
- Empagliflozin 10mg p.o. once daily
- Perindopril 8mg p.o. once daily
- Rosuvastatin 10mg p.o. once daily
- Insulin glargine U-100 25 units s.c. once daily
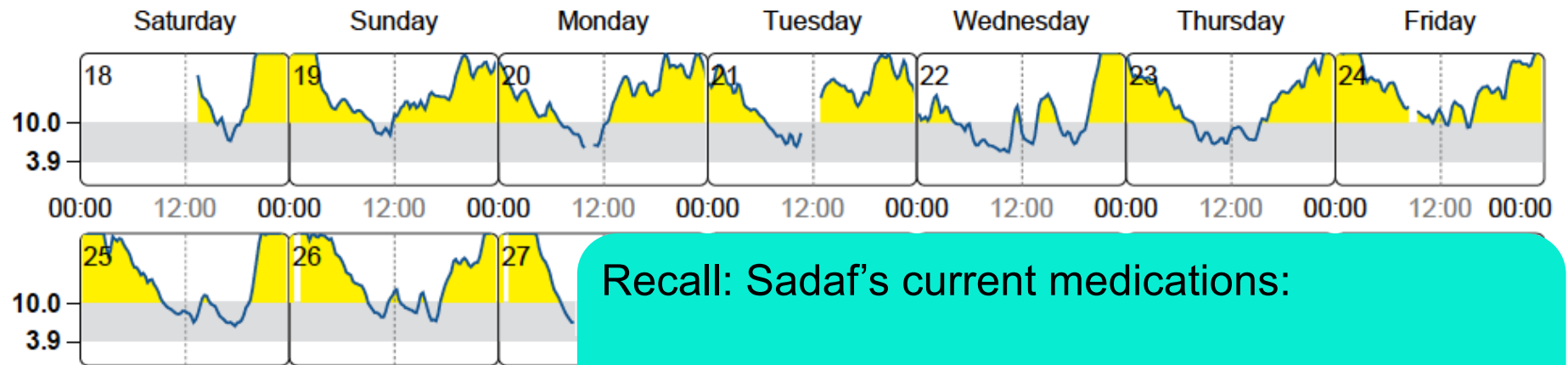
How would you adjust Sadaf's medications?

Hypoglycemia low blood sugar in adults

What are the signs?

Each person will have their own way of recognizing low blood sugar.

Some of the signs include:

Less than 3.9

Severity

- Sweating
- Trembling
- Palpitations
- Anxiety
- Hunger
- Nausea
- Headache
- Tingling
- Disturbed sleep
- Weird dreams
- Weakness/ dizziness
- Difficulty concentrating
- Vision changes
- Drowsiness
- Difficulty speaking
- Unconsciousness

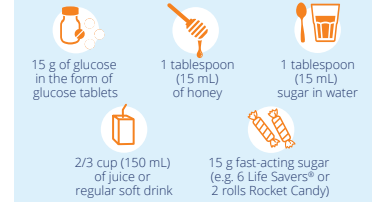## Why does low blood sugar happen?

Have you:

- Eaten less than planned?
- Eaten later than normal?
- Taken more medication than planned?
- Been more active than planned?
- Drunk any alcohol within the past 24 hours?

Fear of lows is common and may cause excess anxiety, stress, reducing the ability to function and quality of life. If you are having lows, speak with your diabetes health-care team:

- Doctor
- Nurse practitioner
- Pharmacist
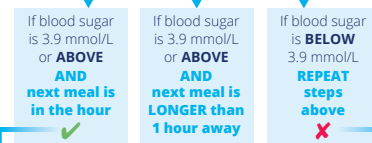- Nurse
- Dietitian

How to take action

If able to swallow, EAT fast-acting sugar

- 15 g of glucose in the form of glucose tablets
- 1 tablespoon (15 mL) of honey
- 1 tablespoon (15 mL) sugar in water
- 2/3 cup (150 mL) of juice or regular soft drink
- 15 g fast-acting sugar (e.g. 6 Life Savers® or 2 rolls Rocket Candy)
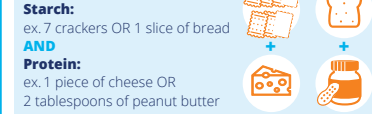
With more severe signs (affecting mental/physical ability):
- If able to swallow → EAT 20g fast-acting sugar
- If unable to swallow → GIVE 3 mg glucagon intranasal or 1 mg SC/IM

WAIT 15 minutes and CHECK

If blood sugar is 3.9 mmol/L or **ABOVE AND** next meal is in the hour ✔	If blood sugar is 3.9 mmol/L or **ABOVE AND** next meal is **LONGER than 1 hour away**	If blood sugar is **BELOW** 3.9 mmol/L **REPEAT steps above** ✘

Eat ONE of:

Starch:
ex. 7 crackers OR 1 slice of bread

AND

Protein:
ex. 1 piece of cheese OR 2 tablespoons of peanut butter

Are you Driving?

After treating a low, **Wait** until your blood sugar is above 5 mmol/L to start driving. Your brain might need up to 40 minutes to recover before you can safely drive again.

Poll 4:

After your discussion with Sadaf about the "Power" of Food, Sadaf appears motivated to adopt low(er) carbohydrate foods in her eating routine. When would you follow-up with Sadaf?

A. 1 day

B. 3 days

C. 7 days

D. 14 days

E. 1 month

Recall: Sadaf's current medications:

- Metformin 1,000mg p.o. twice daily
- Empagliflozin 10mg p.o. once daily
- Perindopril 8mg p.o. once daily
- Rosuvastatin 10mg p.o. once daily
- Insulin glargine U-100 25 units s.c. once daily

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Supporting Virtual Follow-Up Care

AGP Report

18 March 2023 - 31 March 2023 (14 Days)

GLUCOSE STATISTICS AND TARGETS

18 March 2023 - 31 March 2023	14 Days
Time sensor active:	95%

Ranges And Targets For	Type 1 or Type 2 Diabetes
Glucose Ranges	**Targets** % of Readings (Time/Day)
Target Range 3.9-10.0 mmol/L	Greater than 70% (16h 48min)
Below 3.9 mmol/L	Less than 4% (58min)
Below 3.0 mmol/L	Less than 1% (14min)
Above 10.0 mmol/L	Less than 25% (6h)
Above 13.9 mmol/L	Less than 5% (1h 12min)
Each 5% increase in time in range (3.9-10.0 mmol/L) is clinically beneficial.	

Average Glucose	12.2 mmol/L
Glucose Management Indicator (GMI)	8.6% or 70 mmol/mol
Glucose Variability	41.5%

Defined as percent coefficient of variation (%CV); target ≤36%
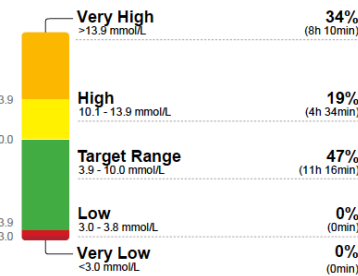
TIME IN RANGES

Very High >13.9 mmol/L	**34%**	(8h 10min)
High 10.1 - 13.9 mmol/L	**19%**	(4h 34min)
Target Range 3.9 - 10.0 mmol/L	**47%**	(11h 16min)
Low 3.0 - 3.8 mmol/L	**0%**	(0min)
Very Low <3.0 mmol/L	**0%**	(0min)

AMBULATORY GLUCOSE PROFILE (AGP)

AGP is a summary of glucose values from the report period, with median (50%) and other percentiles shown as if occurring in a single day.

DAILY GLUCOSE PROFILES

Each daily profile represents a midnight to midnight period with the date displayed in the top-left corner.
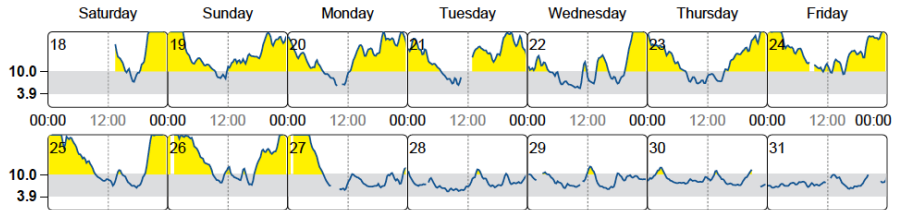
AGP Report

1 April 2023 - 14 April 2023 (14 Days)

GLUCOSE STATISTICS AND TARGETS

1 April 2023 - 14 April 2023	14 Days
Time sensor active:	78%

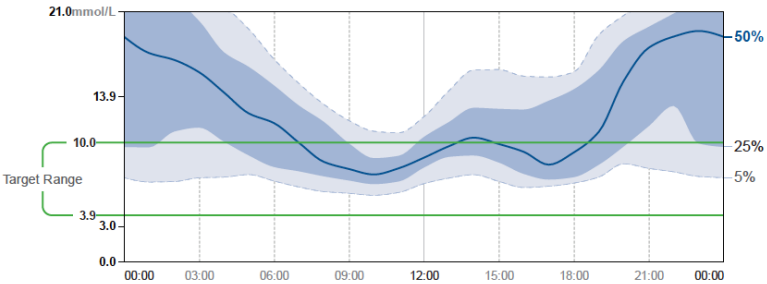| Ranges And Targets For	Type 1 or Type 2 Diabetes
Glucose Ranges	**Targets** % of Readings (Time/Day)
Target Range 3.9-10.0 mmol/L	Greater than 70% (16h 48min)
Below 3.9 mmol/L	Less than 4% (58min)
Below 3.0 mmol/L	Less than 1% (14min)
Above 10.0 mmol/L	Less than 25% (6h)
Above 13.9 mmol/L	Less than 5% (1h 12min)
Each 5% increase in time in range (3.9-10.0 mmol/L) is clinically beneficial.	

Average Glucose	7.5 mmol/L
Glucose Management Indicator (GMI)	6.6% or 48 mmol/mol
Glucose Variability	19.3%

Defined as percent coefficient of variation (%CV); target ≤36%
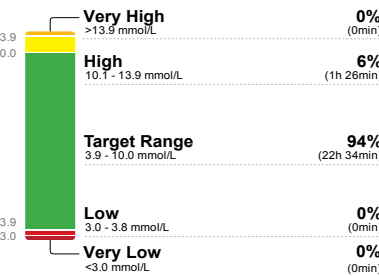
TIME IN RANGES

|		
Very High >13.9 mmol/L	**0%**	(0min)
High 10.1 - 13.9 mmol/L	**6%**	(1h 26min)
Target Range 3.9 - 10.0 mmol/L	**94%**	(22h 34min)
Low 3.0 - 3.8 mmol/L	**0%**	(0min)
Very Low <3.0 mmol/L	**0%**	(0min)

AMBULATORY GLUCOSE PROFILE (AGP)

AGP is a summary of glucose values from the report period, with median (50%) and other percentiles shown as if occurring in a single day.
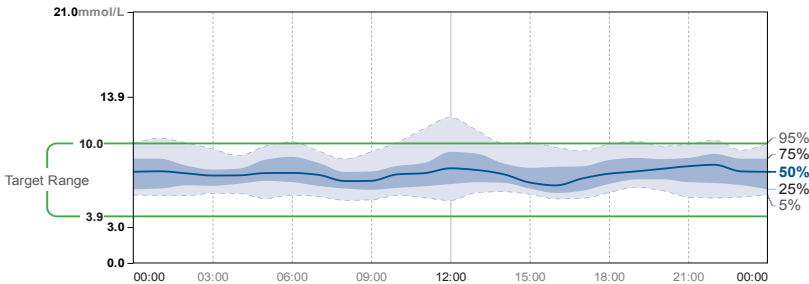
DAILY GLUCOSE PROFILES

Each daily profile represents a midnight to midnight period with the date displayed in the top-left corner.

Action Goals

By the end of this webinar, participants will WANT to:

Proactively engage with people in our community pharmacies to ensure:

- ✓ People who are using continuous glucose monitoring (CGM), know their CGM numbers and what they mean
- ✓ People who could benefit from using CGM to support their diabetes self-care are aware of how CGM technology could help them

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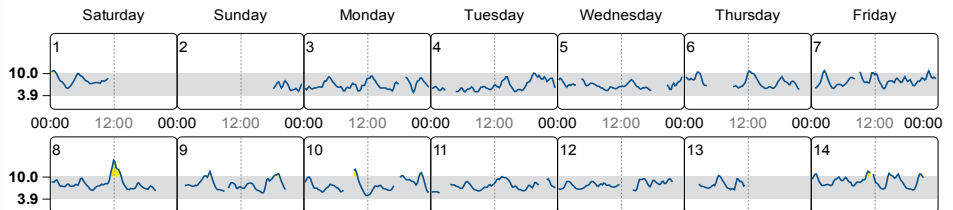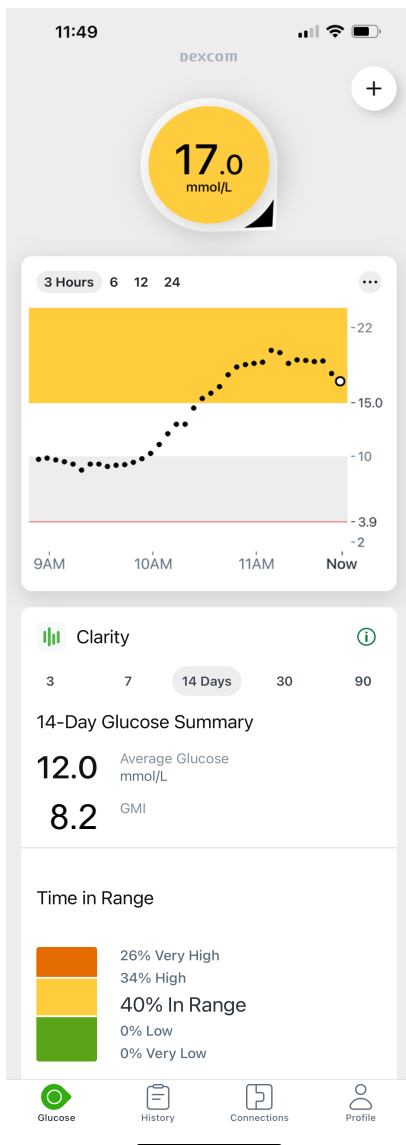
Know Your Numbers and What They Mean

11:49 dexcom

17.0 mmol/L

3 Hours 6 12 24

22
15.0
10
3.9
-2

9AM 10AM 11AM Now

Clarity
3 7 14 Days 30 90

14-Day Glucose Summary

12.0 Average Glucose mmol/L

8.2 GMI

Time in Range

- 26% Very High
- 34% High
- 40% In Range
- 0% Low
- 0% Very Low

Glucose History Connections Profile

A1C Targets for glycemic management

A1C (%)	Targets
<6.0	Selected adults with type 2 diabetes with potential for remission to normoglycemia
≤6.5*	Adults with type 2 diabetes to reduce the risk of chronic kidney disease and retinopathy if at low risk of hypoglycemia†
≤7.0	**MOST ADULTS WITH TYPE 1 OR TYPE 2 DIABETES**
7.1 ↓ 8.5	7.1-8.0%: Functionally dependent† 7.1-8.5%: • Recurrent severe hypoglycemia and/or hypoglycemia unaware... • Frail individuals and/or with cognitive impairment‡ • Limited life expectancy
	Avoid higher A1C to minimize risk of symptomatic hyperglycemia and ac...

End of life: A1C measurement not recommended. Avoid symptomatic hyperglycemia and any hypog...
* Target 6.0 to <6.5 for adults with type 2 diabetes with potential for remission to prediabetes
† Based on class of antihyperglycemic medication(s) utilized and the person's characteristics
‡ See Diabetes in Older People chapter

Blood Glucose (BG) Targets for glycemic managen...

Blood Glucose (BG) Targets	Fasting / Preprandial BG (mmol/L)	2-...
For most people with diabetes	4.0 – 7.0	5.0...

Continuous Glucose Monitoring (CGM) Targets for glycemic management (when indicated*/accessible)

For most people with Type 1 & Type 2 diabetes glycemic variability ≤36 %CV#

- Functionally-dependent
- Recurrent severe hypoglycemia and/or Impaired awareness of hypoglycemia
- Frail / Cognitively-impaired

Type 1 diabetes: pregnancy

TAR Time above range
- >13.9 mmol/L <5 %
- >10.0 mmol/L <25 %
- >13.9 mmol/L <10 %
- >10.0 mmol/L <50 %
- >7.8 mmol/L <25 %

TAR Time in range
- 3.9 - 10.0 mmol/L >70§ %
- 3.9 - 10.0 mmol/L >50 %
- 3.5 - 7.8 mmol/L >70 %

TAR Time below range
- < 3.9 mmol/L <4.0 %
- < 3.0 mmol/L <1.0 %
- < 3.9 mmol/L <1.0 %
- < 3.5 mmol/L <4.0 %
- < 3.0 mmol/L <1.0 %

§ Corresponds with an A1C of approximately 7%; # glycemic variability reported as % coefficient of variation (%CV)
* When not at risk of hypoglycemia, may consider targeted, periodic use of CGM in engaged individuals to identify therapeutic gaps, tailor therapy and support individualized daily self-management
Every absolute 10% change in %TIR correlates with 0.5-0.8% change in A1C

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If using Libre2…

A1C Targets for glycemic management

A1C (%)	Targets
<6.0	Selected adults with type 2 diabetes with potential for remission to normoglycemia
≤6.5*	Adults with type 2 diabetes to reduce the risk of chronic kidney disease and retinopathy if at low risk of hypoglycemia[†]
≤7.0	**MOST ADULTS WITH TYPE 1 OR TYPE 2 DIABETES**
7.1 → 8.5	7.1-8.0%: Functionally dependent[‡] 7.1-8.5%: • Recurrent severe hypoglycemia and/o... • Frail individuals and/or with cognitive... • Limited life expectancy
	Avoid higher A1C to minimize risk of symptom...

End of life: A1C measurement not recommended. Avoid symptom...
* Target 6.0 to <6.5 for adults with type 2 diabetes with potential f...
† Based on class of antihyperglycemic medication(s) utilized and t...
‡ See Diabetes in Older People chapter

Blood Glucose (BG) Targets for g...

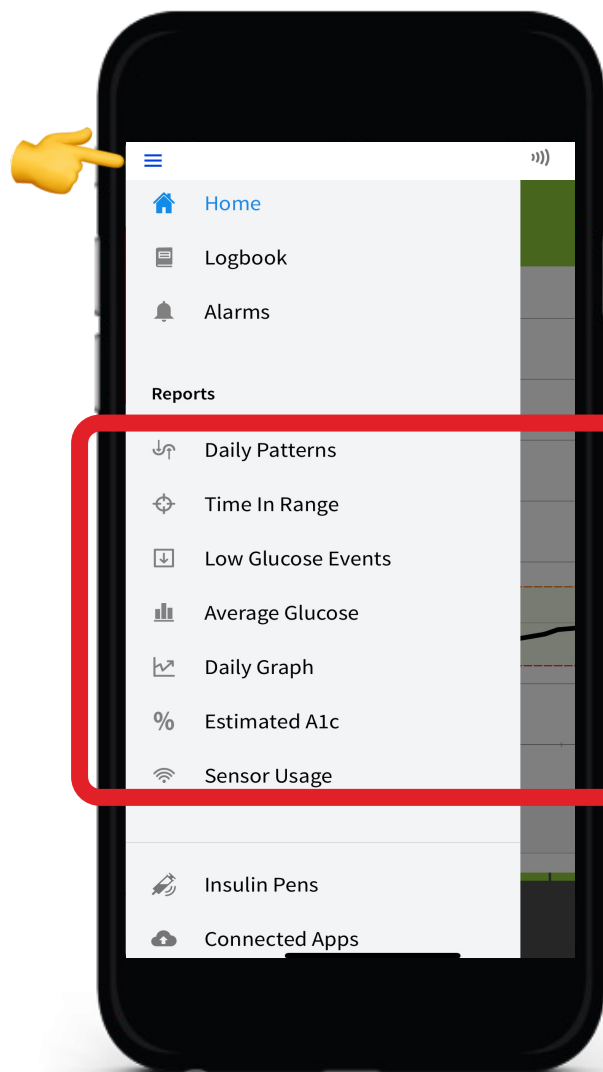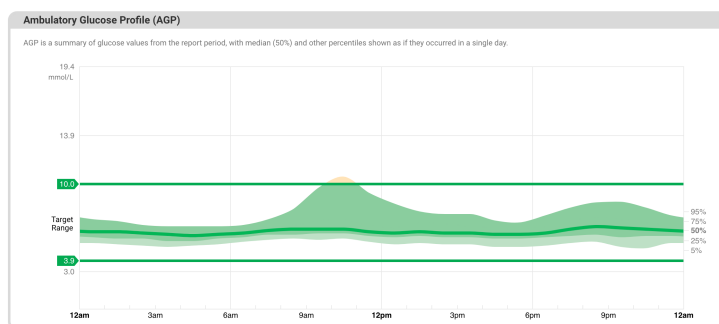| Blood Glucose (BG) Targets	Fasting / Prepr...
For most people with diabetes	4.0 – 7.0

Continuous Glucose Monitoring (CGM) Targets for glycemic management (when indicated*/accessible)

For most people with Type 1 & Type 2 diabetes glycemic variability ≤36 %CV#

- Functionally-dependent
- Recurrent severe hypoglycemia and/or Impaired awareness of hypoglycemia
- Frail / Cognitively-impaired

Type 1 diabetes: pregnancy

	For most people with Type 1 & Type 2 diabetes	Functionally-dependent etc.	Type 1 diabetes: pregnancy
TAR Time above range	>13.9 mmol/L <5 % >10.0 mmol/L <25 %	>13.9 mmol/L <10 % >10.0 mmol/L <50 %	>7.8 mmol/L <25 %
TAR Time in range	3.9 - 10.0 mmol/L >70 %§	3.9 - 10.0 mmol/L >50 %	3.5 - 7.8 mmol/L >70 %
TAR Time below range	< 3.9 mmol/L <4.0 % < 3.0 mmol/L <1.0 %	< 3.9 mmol/L <4.0 % < 3.0 mmol/L <1.0 %	< 3.5 mmol/L <4.0 % < 3.0 mmol/L <1.0 %

§ Corresponds with an A1C of approximately 7%; # glycemic variability reported as % coefficient of variation (%CV)
* When not at risk of hypoglycemia, may consider targeted, periodic use of CGM in engaged individuals to identify therapeutic gaps, tailor therapy and support individualized daily self-management
Every absolute 10% change in %TIR correlates with 0.5-0.8% change in A1C

Phone menu
- Home
- Logbook
- Alarms

Reports
- Daily Patterns
- Time In Range
- Low Glucose Events
- Average Glucose
- Daily Graph
- Estimated A1c
- Sensor Usage
- Insulin Pens
- Connected Apps

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Continuous Glucose Monitoring (CGM) Goals

1. Aim for time in range<u>s</u> goals
2. Strive for flat, narrow, in-range (FNIR) glucose profile
3. Minimize glycemic variability (CV ≤36 % [1,2])

Ambulatory Glucose Profile (AGP)

AGP is a summary of glucose values from the report period, with median (50%) and other percentiles shown as if they occurred in a single day.

Type 1 and Type 2 diabetes

TAR Time above range	> 13.9 mmol/L	< 5% (72 min)
	> 10.0 mmol/L	< 25% (6 hrs)
TIR Time in range	3.9 - 10.0 mmol/L	> 70% (17 hrs)
TBR Time below range	< 3.9 mmol/L	< 4% (1 hr)
	< 3.0 mmol/L	< 1% (15 min)

CV, coefficient of variation; T1D, type 1 diabetes; T2D, type 2 diabetes.
1Battelino T et al. *Diabetes Care*. 2019; 42(8): 1593-1603. 2. Cheng A et al. *Can J Diabetes*. 2021; 45: 580-587.

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Poll 5:

I am comfortable explaining Time-In-Range (including Time-Below-Range and Time-Above-Range) to a person who is using Continuous Glucose Monitoring technology.

A. Strongly Agree

B. Agree

C. Disagree

D. Strongly Disagree

Poll 6:

I am comfortable explaining the Glucose Management Indicator (GMI), [also known as Estimated A1C or Sensor-derived A1C] to a person who is using Continuous Glucose Monitoring technology.

A. Strongly Agree

B. Agree

C. Disagree

D. Strongly Disagree

Action Goals

By the end of this webinar, participants will WANT to:

Proactively engage with people in our community pharmacies to ensure:

- ✓ People who are using continuous glucose monitoring (CGM), know their CGM numbers and what they mean

- ✓ People who could benefit from using CGM to support their diabetes self-care are aware of how CGM technology could help them

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Proactively engage:
- ✓ Identify people when they are picking up repeats on their CGM sensors

- ✓ When people order repeats for their CGM sensors, if they are connected to your practice (Dexcom Clarity or Libreview), check their CGM stats during clinical verification…
  - ✓ flag the repeat for counselling during pick up
  - ✓ call them when the timing suits you to offer support with CGM data

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- ✓ People who could benefit from using CGM to support their diabetes self-care are aware of how CGM technology could help them

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Who could benefit from using Continuous Glucose Monitoring?

- All persons on insulin
- Consider for persons using sulfonylureas
- Persons with hypoglycemia regardless of etiology

Hypoglycemia
- Identifying
- Treating
- Prevention

- Consider:
  - Episodic CGM as an audit of glycemic patterns in any person with diabetes or prediabetes
    - when A1C is above the person's individualized target
    - for persons desiring information on impact of food and physical activity

Reference: Handelsman, Y. DCRM 2.0: Multispecialty practice recommendations for the management of diabetes, cardiorenal, and metabolic diseases. Metabolism 159 (2024) 155931 https://doi.org/10.1016/j.metabol.2024.155931

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Who could benefit from using Continuous Glucose Monitoring?

Continuous Glucose Monitoring (CGM) Targets for glycemic management (when indicated*/accessible)

For most people with Type 1 & Type 2 diabetes glycemic variability ≤36 %CV#	• Functionally-dependent • Recurrent severe hypoglycemia and/or Impaired awareness of hypoglycemia • Frail / Cognitively-impaired	Type 1 diabetes: pregnancy
TAR Time above range: >13.9 mmol/L **<5 %**; >10.0 mmol/L **<25 %**	>13.9 mmol/L **<10 %**; >10.0 mmol/L **<50 %**	>7.8 mmol/L **<25 %**
TAR Time in range: 3.9 - 10.0 mmol/L **>70§ %**	3.9 - 10.0 mmol/L **>50 %**	3.5 - 7.8 mmol/L **>70 %**
TAR Time below range: < 3.9 mmol/L **<4.0 %**; < 3.0 mmol/L **<1.0 %**	< 3.9 mmol/L **<1.0 %**	< 3.5 mmol/L **<4.0 %**; < 3.0 mmol/L **<1.0 %**

TITR Time in Tight Range
↳ normoglycemia may be as high as > 95 %

§ Corresponds with an A1C of approximately 7%; # glycemic variability reported as % coefficient of variation (%CV)

* When not at risk of hypoglycemia, may consider targeted, periodic use of CGM in engaged individuals to identify therapeutic gaps, tailor therapy and support individualized daily self-management

Every absolute 10% change in %TIR correlates with 0.5-0.8% change in A1C

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Using CGM Daily in ENGAGED INDIVIDUALS:
learn from colours, learn from arrows

GLUCOSE IN RANGE
7.9 → mmol/L

10.3 ↗ mmol/L

⚠ **GLUCOSE GOING HIGH**
12.9 ↑ mmol/L

more green, less red/yellow

Good food choices

↗ OK food choices

↑ What did I just eat?

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Using CGM Daily: compare daily CGM to daily TIR
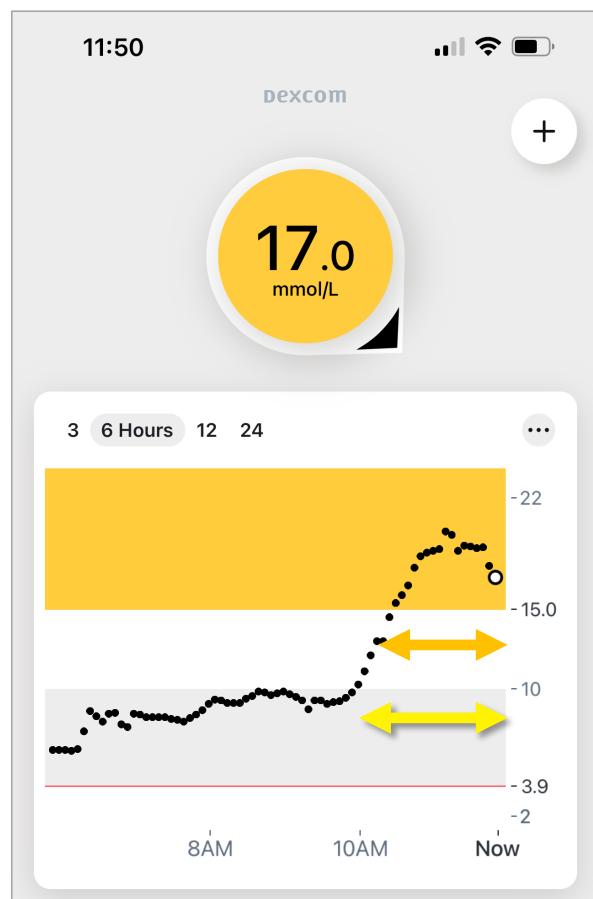
Type 1 and Type 2 diabetes

TAR Time above range	> 13.9 mmol/L	< 5% (72 min)
	> 10.0 mmol/L	< 25% (6 hrs)
TIR Time in range	3.9 - 10.0 mmol/L	> 70% (17 hrs)
TBR Time below range	< 3.9 mmol/L	< 4% (1 hr)
	< 3.0 mmol/L	< 1% (15 min)

~1.5 hours above 13.9 mmol/L → greater than daily max

~2 hours above 10 mmol/L

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Action Goals

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What about cost and access?

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Return to Poll 2:

Having assessed Sadaf's current glycemic management, and based on the last day you were at work, what action would you take?

A. Offer to book an appointment for Sadaf so that YOU can support Sadaf in her diabetes self-management

B. Refer Sadaf back to her diabetes health-care team, e.g., her primary care provider and/or the local diabetes education centre

Both are correct. Both can result in improved health outcomes for Sadaf.
Our ACTION on Continuous Glucose Monitoring can make a difference.

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- ✓ People who could benefit from using CGM to support their diabetes self-care are aware of how CGM technology could help them
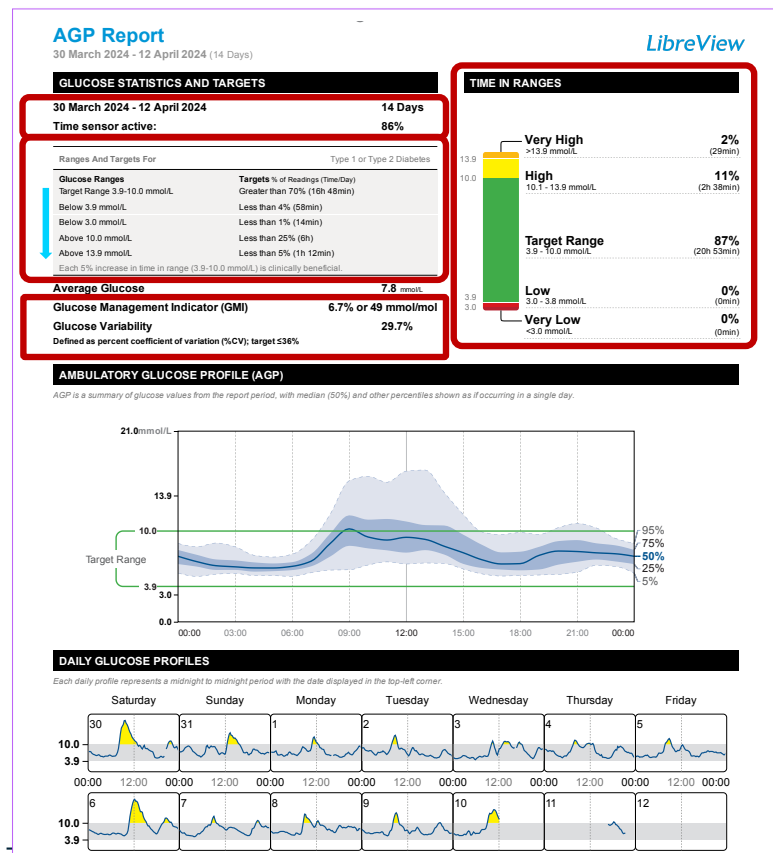
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Thank you

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What if… Sadaf 1 year later

~~45~~ years old → 46 years old

Type 2 diabetes x ~~5~~ years → 6 years old
Obesity, no other comorbidities → weight down by 10% (BMI 32)
stressful, sedentary employment

Current medications:
- Metformin 1,000mg p.o. twice daily
- Empagliflozin 10mg p.o. once daily
- Perindopril 8mg p.o. once daily
- Rosuvastatin 10mg p.o. once daily
- Insulin glargine U-100 ~~25~~ 10 units s.c. once daily

Poll 7:

Based on Sadaf's continuous glucose monitoring data, what would you recommend for Sadaf for her glycemic management?

A. No change. Sadaf is at her A1C target

B. Increase basal insulin. Sadaf could target an A1C of ≤6.5 % to reduce her risk of chronic kidney disease and retinopathy

C. Increase SGLT2i for more glucose lowering and kidney and heart protection

D. Stop basal insulin, start incretin agonist therapy to support Sadaf's priority of weight management, and potential glucose lowering to target an A1C of <6.5%